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ABSTRACT

This document reports the results of an evaluation of the protocol film series "Concepts and Patterns in Teacher Pupil Interaction." Both concept acquisition and user reactions were evaluated. Concept acquisition was tested using two studies, a pre- and posttest design and a posttest only design. Experimental groups in both studies scored significantly higher on the posttest than the control group did, and the pre- and posttest group scored higher gains than the posttest only group did. To test user reaction, an instructor questionnaire consisting of 14 Likert scale items and a student questionnaire consisting of 20 items were developed. Instructors felt that: (a) the quality of the film was good; (b) the concepts stressed in the series were clearly defined and understandable; and (c) the materials were applicable in a wide variety of instructional methods, groups, and settings. Analyses of student responses show that they felt that: (a) the films were worth the class time spent on them, (b) the purpose of the films was clear, and (c) the concepts emphasized in the film would be valuable to them in the classroom. Results of the study show that use of the film led to an overall gain in the ability of students to categorize classroom behavior in terms of a specified set of concepts. The conceptual clarity, instructional utility, and technical quality of the films in the series were established for a heterogeneous sample of graduate and undergraduate preservice and inservice teachers. (HMD)

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Effects of a Protocol Film Series in Terms of Learning Outcomes and Reactions of Users

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Foreword

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In 1970-71, a pilot protocol film based on concepts in teacher-pupil interaction was developed and produced by the Indiana University Protocol Materials Project. This film, entitled Classroom Protocols, was used and evaluated with necessarily rudimentary instruments and techniques and the results reported as a pilot evaluation study.[1]

Drawing upon the conceptual and technical experiences involved in this preliminary project, a second set of protocol films was produced in 1971 as part of a complementary set of protocol and training materials. These materials were developed as an exploratory product of the National Center for the Development of Training Materials in Teacher Education, at Indiana University. A better designed set of films, entitled Patterns in Teacher-Pupil Interaction: Reacting to Pupil Responses I & II, and a more soundly based set of evaluation instruments made possible a more systematic evaluation, one that has been formally reported.[2]

Finally, during the years 1971-73, the protocol films in the Concepts and Patterns in Teacher-Pupil Interaction series were developed and produced, as an extension and culmination of these initial projects. The present report describes a systematic evaluation of the films in the Concepts and Patterns series. It should be of interest, first, to users and potential users of these protocol films since it does summarize the results of using the Concepts and Patterns series in classroom instruction over a wide variety of settings, levels, and students. The results reported also have certain implications for the general design of protocol materials; for that reason, they should be of interest to developers of protocol materials. Finally, users and developers alike may well find something of value in the practical solutions to the evaluation problems described in this report.

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[1] "A Preliminary Evaluation Report on the Development and Use of Filmed Protocol Materials Within Two Instructional Strategies," Unpublished report, Bloomington, Indiana: Indiana University Protocol Materials Project, July, 1971.

[2] Kleucker, Joy. "Effects of Protocol and Training Materials." Acquiring Teaching Competencies: Reports and Studies. Bloomington, Indiana: National Center for the Development of Training Materials in Teacher Education. Report #6, September, 1974.

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Among the many people who have contributed to this utilization and evaluation effort, the authors of this report wish to express particular thanks to Michael Waddell of Promotional Marketing Services, Louisville, our film producer, who so skillfully handled the unusual production demands posed by this project; Maurice Hendrickson, formerly of the protocol materials staff, who was responsible for the actual construction of the evaluation instruments; Gordon Goodwin who worked tirelessly at the task of data analysis; Mrs. Diane Nelson and Mrs. Felicia Fellmeth who typed the final copy of this report.

David Gliessman
November 18, 1974

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Effects of a Protocol Film Series in Terms of Learning Outcomes and Reactions of Users

The primary purpose of this report is to summarize the results of a systematic evaluation of a specific set of protocol materials. However, since the general development and evaluation of protocol materials is in a formative stage, the content of this report may well have more general implications. These implications pertain especially to the design of protocol materials themselves and of the strategies and instruments for their evaluation.

The specific protocol materials evaluated in this report comprise the films in the Concepts and Patterns in Teacher-Pupil Interaction series. The purpose of these protocol films is to specify, define and illustrate a set of concepts pertaining to teacher behavior in classroom interaction with pupils. When used appropriately, these films should contribute directly to the acquisition of a set of interpretive concepts and indirectly to the development of the skills described by these concepts. In terms of learning outcomes, however, the present report focuses on the acquisition of concepts, the primary outcome at which the use of any protocol material is directed.[1]

Description of the Protocol Series

The Concepts and Patterns series is based on three pairs of concepts: approving and disapproving, probing and informing, reproductive questioning and productive questioning. As indicated in the previous paragraph, these concepts refer to teacher behavior in an interactive model of teaching. In other words, they refer to teacher solicitation and reaction in teacher-led classroom discussion. Definitions of the concepts are provided in the Appendix to this report.

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[1] Gliessman, David. "An Introduction to Protocol and Training Materials." Acquiring Teaching Competencies: Reports and Studies. Bloomington, Indiana: National Center for the Development of Training Materials in Teacher Education. Report #1, September, 1972.

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The series itself consists of a set of nine motion picture films in color with sound. These films portray or document teacher-pupil interaction in varied subject areas and at varied grade levels. The nine films are divided into two subsets:

a. Three Concept films that define, instance, and explicate the basic concepts; these films are also designed to provide a motivational and informational "set" for the remaining films in the series. These are narrated films ranging from five minutes to ten minutes in length. The titles and a brief description of each follows:

   Approving and Disapproving--introduces, defines, analyzes, and instances "approval" and "disapproval" as teacher reactive behaviors.

   Probing and Informing--introduces, defines, and instances "probing" and "informing" as teacher reaction skills in classroom discussion. Also analyzes the concept of "probing" as a questioning technique.

   Questioning: Reproductive and Productive--introduces, defines, and instances "reproductive questioning" and "productive questioning" as teacher questioning skills. Analyzes "productive questioning" as incorporating higher level goals in Bloom's Taxonomy. Compares "reproductive questioning" (in other words, questioning that requires essentially memory level responses) with the "knowledge level" of the taxonomy.

b. Six Pattern films each documenting an episode in teacher-pupil interaction. Different films in this subset are interpretable in terms of the set of concepts described above since the relevant teacher behaviors occur with significant frequency. However, the salience of the behaviors is not artificially increased by editorial devices: the films are not narrated and editorial structuring devices (such as title frames within the film) are not used. These may be described as essentially documentary films. The films in this subset are approximately ten minutes in length. Titles and a brief description of each episode follows:

   People Who Help Us--A second grade teacher and her class explore the topic of "community helpers".

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The Five Senses--Also at the second grade level, this teacher explores the concept of the five senses with her class.

Ecology--During a field trip, a seventh grade teacher analyzes the problem of environmental pollution with her students.

Essentials for Life--A seventh grade class recitation on the basic essentials for life followed by a discussion using this information in exploring an original problem.

Population Control--A tenth grade social studies class discusses the problem of population growth and population control.

Bacteria--A tenth grade science class reviews the forms and uses of bacteria, then applies this information to a demonstration of bacterial action.

A distinctive characteristic of this protocol series is that it is entirely "film based"; no adjunct material is provided for student use. The practical consequence of this is that the film series itself must convey essential conceptual content as well as portray behavior to be interpreted.[2] The purpose of such a format was to provide an instructional resource that was highly adaptable to the varied approaches of instructors in normal classroom use. In other words, the film-based format was designed to avoid the constraints on instruction often imposed by a "multi-media package". To further assure such adaptability, the films within the series are flexibly sequenced. Although the rationale of the series does suggest using specific Concept films and Pattern films in that sequence, the selection of individual films is largely open to the instructor and variations in sequence are encouraged.

General Evaluation Plan

Although the details of instrument development and data gathering are described in the following sections of this report, it should be

[2] A ten page manual does provide the instructor with definitions of the the concepts, suggested uses of the films, selected references, etc. The instructor may certainly draw upon this resource to elaborate upon the concepts. However, even in this brief manual, appropriate textual material that might be reprinted for students amounts to no more than a few pages.

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helpful at this point to provide a general summary of, and rationale for, the evaluation plan. Both learning outcomes (in terms of concept acquisition) and reactions of users were of interest to the developers of the series. A decision was made to collect data on these two effects of the series largely in different settings. In fact, in only two of the 23 classes eventually included in the study were data obtained on both learning outcomes and reactions of users.

In the case of assessing learning outcomes, data were gathered in those settings in which the instructional procedure and conditions of testing could be appropriately controlled. To fail to exercise such controls would certainly lead to uninterpretable, perhaps specious, results. For this reason, all data on concept acquisition were collected in classes with which project personnel were in regular and direct contact, either as instructors or as evaluators.

This degree of control, on the other hand, was not a desired condition for assessing the reactions of users. In this case, a deliberate attempt was made to assure independence from project staff control (or even staff contact). In other words, the survey of users was designed to be as analogous as possible to the ultimate conditions of use during general distribution of the film series. For this reason, instructors interested in participating in the survey were essentially treated as consumers of the films. They were provided the films in the series, instructor's manual, and necessary evaluation materials without added support, instructions or orientation. In the majority of cases, there was no personal contact during instruction between the project staff and the instructors. It was felt that this arrangement would yield the best information on the completeness and applicability of the series in "normal" use.

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Learning Outcomes as Evidenced by Concept Acquisition

The learning criterion in this study was the acquisition of the six concepts named on the first page of this report. For purposes of this study, concept acquisition was defined as the ability to identify and categorize correctly recorded instances of teacher behavior specified by this set of concepts. This criterion is consistent with the general purpose of protocol materials: to aid in the functional acquisition of concepts as a basis for interpretive skills.

At an early point in development, it was decided to construct an evaluation instrument that would require the learner to identify and categorize audio-visual records of behavior without supporting printed records or descriptions. It was felt that categorizing such observed behavior would most closely approximate the interpretation of behavior in actual classrooms.[3] This decision called for the development of a test format in which classroom episodes would be presented by means of videotape or film. In the following two sections, this evaluation instrument and the general design used to assess its validity will be described.

Evaluation Instrument

The basic evaluation instrument, Categorizing Teacher Behavior, consists of 30 brief classroom episodes presented by means of videotape transferred from film. Each episode is presented twice with a delay of from two to four seconds between presentations; the purpose of this repeated presentation is to minimize dependence on memory as a factor in responding. Following the second presentation of each episode, the student is allowed a fifteen second period in which to respond by recording his answer on a separate answer sheet.

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[3] Ultimately, a printed evaluation instrument was developed following the same format as the instruments described in this section but containing different episodes. This "paper and pencil" form was developed partly as an exploratory instrument and partly as an efficient test form for users of the series.

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Two forms of the test were developed, Form F1 and Form F2. The only difference between the two forms is in the source of the classroom episodes portrayed. In the case of Form F1, the classroom episodes were taken from "outtakes" of film footage from the Concepts and Patterns series (that is, from footage not included in the films themselves). The practical consequence of this is that the classroom setting, general subject matter, teachers and pupils are the same in the test videotape as in the film series itself. However, the specific episodes and behaviors appearing in the videotape test in no case appear in the actual films of the series. To compensate for some of the obvious methodological problems associated with evaluating performance using the same source of materials as that used in instruction, an alternate form of the test was also constructed. This form, Form F2, incorporates episodes from the pilot protocol films produced by the Indiana University Project; in this case, none of the classroom settings, teachers, pupils or episodes are common to both instructional and evaluation conditions. In other words, no footage from the production of the final film series was used in the development of Form F2.

The task for the student in responding to either Form F1 or Form F2 is the same: determining whether or not the teacher's behavior in a given episode instances or exemplifies each of a selected four of the six concepts included in the series. As an example, in the case of one episode, the student is asked to indicate whether or not he sees evidence of probing, informing, approval and disapproval in the teacher's behavior. Each form of the test is divided into three major sections, providing for all possible combinations of the pairs of concepts. In the case of each form, Part I requires episodes to be categorized in terms of probing, informing, approval and disapproval. In Part II, the concepts involved are productive questioning, reproductive questioning, approval and disapproval. In Part III, the concepts are probing, informing, productive questioning and reproductive questioning. The total time for the test (including repeated episodes, delays between episodes, and delays for responding) is approximately 35 minutes (with some small variation in time between forms).

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In the present study, student responses were scored as correct (that is, an accurate categorization of the teacher's behavior); partially correct/partially incorrect (that is, an incomplete categorization of the teacher's behavior); or incorrect (an inaccurate categorization of the teacher's behavior). Two points were allowed for each correct response and one point was allowed for each partially correct/partially incorrect response. With four concepts to be categorized for each episode, and thirty episodes in all, a perfect score on the test is 240 points.[4]

Design for Instrument Validation

The design for establishing the validity of the evaluation instrument described in the previous section was primarily one of construct validation. Primary emphasis was placed upon planning specifically for the content validity of the instrument, collection of evidence on consistency of scores, and collection of evidence on the effect of specified treatments on scores. To contribute to content validity, each form of the test was constructed with an equal number of items for each of the six concepts (20 items for each concept). Consistency of scores was assessed through a comparison of performance on matched halves of the test. The effect of treatment on scores is reflected in the data reported under the "Results" section of this report. Detailed summaries of evidence on the validity of the evaluation instrument, as well as a rationale for the method of validation, will be reported in a test manual currently under preparation. For purposes of the present report, it is sufficient to say that the evidence for validity is very adequate for the purposes of the instrument. To put it succinctly, the test, Categorizing Teacher Behavior, was consistently sensitive to instructional treatment utilizing the protocol films in the series.

[4]After completion of the studies in this report, the allotment of partial credit in scoring was discontinued, retaining a simple "correct" and "incorrect" scoring system. The point total of 240, however, was retained to represent a perfect score.

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Instructional Procedure

The protocol films in the Concepts and Patterns series were used as part of regular classroom instruction in five sections of a master's level course in educational psychology. One section of the course was taught by one of the authors, while the remaining four sections were taught by a faculty member attached to the protocol materials project staff.

The students enrolled in these sections were quite representative of those normally enrolled in the course. They were a heterogeneous group largely seeking masters degrees in teaching or professional education but having diverse professional goals (e.g. elementary, secondary and college teaching; educational administration; media production and administration; guidance and counseling). Both pre-service and practicing teachers were enrolled. Both males and females were enrolled in approximately equal numbers and represented a broad age range.

The topics of teacher behavior and teacher-pupil interaction are a conventional part of this educational psychology course as it is normally taught by the instructors involved in this study. Students enrolled in these sections of the course would see those topics as appropriate to the course content. Both instructors also traditionally make use of films of various kinds as part of their classroom instruction. In the present study, the instructors used six or more of the films in the Concepts and Patterns series, incorporating these films into general classroom lecture and discussion. The instructional procedure involved some variation on a standard sequence: showing a single Concept film followed by one or more Pattern films. Discussion and analysis of the concepts and of the filmed behavior both preceded and followed film showings.

Within these sections, however, there were certain differences in course procedure, evaluation design, and test form used. For this reason, the results will be treated under two separate studies. Differences in evaluation design will be clarified in the following section; differences in course procedure and test form can be summarized briefly:

> Study I. Four sections of the course with a total enrollment of 89 students were instructed during the regular academic year, 1973-74. In these sections, film-based instruction

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covered from six to eight hours of classroom instruction over a two to three week period. In the case of these 89 students, Form F1 of the videotape test was used as the primary evaluation instrument.

Study II. During a "short course" offered during the summer session, 1974, nine students were given more intensive film-based instruction. With this group, approximately 12 hours of instruction was condensed into four calendar days. In addition to the films in the series, Form F1 of the videotape test was used instructionally as material for analysis. Form F2 was used as the evaluation instrument. An additional section of the same course (taught by an instructor who was not a member of the project staff and who did not generally use instructional films) was used to obtain comparison data on Form F2. A total of 35 students were enrolled in this section. No training with the protocol films in the series was incorporated into this section.

Results

In Study I, the 89 students enrolled in the three sections were randomly divided, within sections, into two groups: a "posttest only" group that received film-based training followed by a single administration of Form F1 of the test; and a pre- and posttest group that received Form F1 as a pretest, received film-based training, and repeated the same test form after training.[5] The purpose of this differential testing treatment was to help ascertain (and thus allow for) any practice or learning effect from pretesting. It should be noted that students in both Study I and Study II who received the videotape test as a pretest were given a one page summary of the concept names and definitions to "study" for approximately five minutes before taking the pretest. This procedure, intended to increase the "rationality" of taking the videotape test, almost certainly provided minimal training that increased scores on the pretest. It seemed to the authors, however, to be the only defensible way to avoid exaggerating gains on post testing.

[5] Due to a slight error in the randomization procedure, seven more students were included in the Post Only Group than in the Pre-Post Group.

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The results of Study I are summarized in Table 1 below.

Table 1. Results of Protocol Film Based Training for Pre-Post and Post Only Groups.

		Pretest		Posttest	
	N	$\bar{X}$	SD	$\bar{X}$	SD
Pre-Post Group	41	193.34	20.17	212.71	10.13
Post Only Group	48			203.00	12.31

Difference Tested:	F	df	p
Pretest vs. Posttest for Pre-Post Group.	63.33	1, 40	<.01
Pre-Post Group vs. Post Only Group on posttest.	15.78	1, 87	<.01
Pretest for Pre-Post Group vs. posttest for Post Only Group.	7.49	1, 87	<.01

The Pre-Post Group showed a gain in mean test performance of 19.37 points, from 193.34 to 212.71. This gain resulted in an $F(1, 40) = 63.33$ which was significant beyond the .01 level. To check on a possible practice or learning effect from taking Form F1 as a pretest, the mean test performance of the Post Only Group was compared to the after training performance of the Pre-Post Group. The Post Only Group mean of 203.00 was significantly less than the mean test performance of the Pre-Post Group $F(1, 87) = 15.78$, ($p < .01$). A comparison of the mean test performance of the Post Only Group (203.00) with the before training test performance of the Pre-Post Group (193.34), however, yielded an $F(1, 87) = 7.49$ which was significant beyond the .01 level.

These results suggest that the gain in test performance of the

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Pre-Post Group reflected partly a gain in performance from training and partly the contribution of the pretesting experience on Form F1 either through a practice effect or through an interactive effect with training. There clearly is, however, a discernable and significant gain in mean test performance attributable to training alone.

The results for Study II are summarized in Table 2 below.

Table 2. Results of Intensive Protocol Film Based Training Compared to No Training.

		Pretest		Posttest	
	N	$\bar{X}$	SD	$\bar{X}$	SD
Untrained Group	35	189.00	13.95	190.62	15.86
Protocol Group	9	188.11	14.47	208.78	8.11

Difference Tested	F	df	p
Untrained Group vs. Protocol Group on Pretest	0.03	1, 42	>.25
Untrained Group Pretest vs. Posttest	0.76	1, 34	>.25
Protocol Group Pretest vs. Posttest	28.42	1, 8	<.01
Untrained Group vs. Protocol Group on Posttest	9.17	1, 42	<.01

In this case, both the Untrained Group and Protocol Group were pretested and posttested with Form F2 of the videotape test. On the pretest, the difference in mean test performance between the two groups was only 0.89, a difference of less than one item score. This difference yielded an $F(1, 42) = 0.03$ which failed to reach significance ($p > .25$).

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Thus, the initial performance of the Untrained Group and Protocol Group can be considered equivalent.

The pre- and posttest results for the Untrained Group show a gain of 1.62 points in mean test performance (from 189.00 to 190.62). An $F(1, 34) = 0.76$ for this difference failed to reach significance ($p > .25$). It is interesting to note, in this case, that the practice effect of repeating the same form of the videotape test was negligible. This suggests that some of the gain shown by the Pre- Post Group in Study I was a function of an interaction of learning on the pretest with training itself rather than a simple practice effect.

The results for the Protocol Group show a gain of 20.67 points (from 188.11 to 208.78). A test for the significance of this gain yielded an $F(1, 8) = 28.42$ which is significant beyond the .01 level. In essence, then, training with the use of a protocol film based strategy and with intensive analysis of Form F1 of the videotape as an instructional medium resulted in a highly significant gain in test performance. The gain was attributable neither to a simple practice effect from repeating the videotape test nor to the particular selection of students.

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Characteristics of Use and Reactions of Users

The primary goal of the survey of users was to arrive at an objective estimate of the instructional value and applicability of the films in the Concepts and Patterns series. It was expected also that the data obtained would provide an indirect estimate of the general applicability of protocol materials designed similarly to the films in this series. As indicated in the introduction to this report, the Concepts and Patterns series was designed to meet two practical criteria in particular: (1) flexibility for the instructor in selecting and sequencing films for showing; (2) treatment of the necessary conceptual content within the film series itself rather than in adjunct materials.[6] Evidence on the effect of these design characteristics might well have implications for the future development of protocol materials.

To answer these and related questions, two general kinds of data were gathered: (1) descriptive data on conditions and characteristics of use and (2) reactions of instructors and students to the conceptual clarity, instructional value, and technical quality of the films.

Survey Sample

During the academic year, 1973-74, 23 instructors were given the opportunity to use, free of cost, the Concepts and Patterns film series. Of the 23 who were contacted, 18 requested use of the films. These 18 instructors returned both instructor and student evaluation forms. A total of 400 students from 20 classes reacted to the use of the films during this survey.

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[6] The term "necessary conceptual content" is used advisedly to indicate treatment of conceptual content necessary to the analysis of the films (e.g. definitions, some degree of analysis, suggesting relationships to other concepts). The term in no way should imply a full explication or elaboration of conceptual content within a theoretical system.

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The settings in which the films were used were representative of the types of settings for which they were developed. For an undergraduate setting, 10 undergraduate classes were used which ranged from introductory courses in educational psychology to preservice methods courses. All but two were located on the Bloomington campus of Indiana University. The two exceptions were a university in the eastern United States and a teacher training college in West Germany. For a graduate setting, six graduate education classes were used. These classes consisted of a general teacher education course, four educational psychology courses, and a course in educational administration. They were all located on the Bloomington campus of Indiana University. Finally, for an inservice setting, four training groups were used in two different locations in the midwest.

Instruments and Methods

An Instructor Questionnaire was developed (1) to collect information about the educational setting in which the films were used, (2) to obtain information regarding the specific use of the films (e.g., sequencing and instructional time) and (3) to obtain instructor reactions on 14 Likert items to the conceptual, instructional and technical quality of the films. The Instructor Questionnaire was distributed to the instructors at the time they received the films. The completed forms were returned along with the films and were immediately checked for completeness of response. A follow up was conducted, if necessary, to obtain responses to all items on the form. In all cases, the instructors were cooperative and willing to take time to complete the evaluation form. Therefore, it was judged that the information obtained was accurate and reliable for the stated objectives of the evaluation.

Similarly, a Student Rating Scale was developed to obtain student reactions to the conceptual, instructional and technical quality of the films. The Student Rating Scale was administered by the instructors who participated in the survey. Anonymity of student response was allowed in order to obtain more candid student reactions. As a result, no individual student background data were obtained. Consequently, the student reaction data could not be related to other student variables such as teaching experience or educational background.

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Validation of the Student Rating Scale. During the development of this instrument, a panel of judges assessed possible scale items for clarity and content relevance. As a result, 24 Likert items were selected for inclusion in the initial version of the Student Rating Scale. Since student responses were necessary for establishing the scale characteristics of a final version of the instrument, five classes (n = 106) of the total sample were isolated for validation data. Of these five classes, one was in an inservice setting, one in an undergraduate setting, and three in a graduate setting. The five classes, taught by four instructors, consisted of 14, 18, 22, 24 and 28 students.

For each of the 24 Likert items on the Student Rating Scale, item-total correlation coefficients were calculated within each of the five classes. The positive differences between these item-total correlation coefficients and zero were tested using the .05 level of significance. If an item failed to reach the .05 level of significance in at least two of the five classes, the item was subjected to detailed scrutiny by a panel of three judges. Ultimately, this panel reviewed seven items using the criteria of clarity, importance, and generality. All other items reached significance in at least four of the five classes and were judged to have characteristics which would permit reliable interpretation. Of the seven items subjected to review, four were eventually omitted from the scale because an apparent lack of either clarity or generality confirmed the statistical findings.

As a result of this procedure, a set of 20 items was finally identified for evaluating student reactions to the films. The item-total correlation coefficients and scale characteristics (based on a pooling of the five classes composing the validation sample) are reported in the Appendix in Table A. Each of the twenty item-total correlation coefficients were significantly greater than zero ($df = 104$, $p < .05$). The scale reliability was .89. These scale characteristics were judged sufficient to permit evaluation of the films.

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Results of Instructor Evaluation

The use of a portion of the total survey sample for the validation study described in the previous section resulted in a final evaluation sample of 15 classes (or "groups") taught by 14 instructors, since one instructor was responsible for two classes. Evaluative information on this sample, obtained by means of the Instructor Questionnaire, was divided into two major categories: characteristics of use and reactions of instructors.

Characteristics of use. As stated earlier, the films were used with undergraduate, graduate, and inservice groups. Included in these groups were preservice teachers, practicing teachers, and school administrators. The 15 groups ranged in size from small work groups of as few as six students to a relatively large group of 58 students. The average size of the groups was approximately 20 students.

The method of using the films varied among the instructors. Eight instructors used the films in lecture or discussion with the total class, five instructors used the films in small groups within a class, and one instructor used both total class situations and small work groups. Since the complete film series was available to each instructor, the frequency with which each film in the series was used might indicate the comparative appeal or usefulness of the individual films. The frequency of film selection and the number of times each film was shown are reported in Table 3 on the following page.

Clearly, the Concept films were used by more instructors than were the Pattern films. It appears also that the Concept films were shown to the same students more times than the Pattern films. The average number of times the Concept films were shown by a single instructor was 1.33 times. For the Pattern films, the average number of times shown was from 1.0 to 1.1. It appears that the Concept films, designed to present the conceptual content of the series, were sufficiently rich in content and clear in structure to warrant multiple showings. It was originally speculated that the Pattern films typically would be shown a greater number of times to the same students than would the Concept films. This might be especially true if the Pattern films were used in work sessions requiring active student participation.

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Table 3. Frequency of Use and Number of Times Films Were Shown

Film	Instructors	Times Shown	
	N	N	Average
Concepts in Teacher-Pupil Interaction			
Probing and Informing	12	16	1.33
Questioning: Reproductive and Productive	12	16	1.33
Approving and Disapproving	9	12	1.33
Patterns in Teacher-Pupil Interaction:			
Bacteria	7	8	1.14
People Who Help Us	6	6	1.00
The Five Senses	7	7	1.00
Population Control	8	9	1.12
Essentials of Life	4	4	1.00
Ecology	5	5	1.00

It was probably the case that very few, if any, of the instructors fully exploited the potential that has been built into the Pattern films.

A review of the Instructor Questionnaire revealed that, of the 14 instructors, three showed all the films in the series. More typically, two or three of the Concept films and approximately half of the Pattern films were used by an instructor. The sequence in which the films were shown differed slightly among the instructors but by far the most common sequence was a Concept film followed by a Pattern film. Twelve instructors used this sequence which was the utilization model on which the film series was developed.

Various amounts of instructional time were devoted to the use of the films. Eight instructors used one class period, three instructors

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used two class periods, and three instructors used four class periods. Generally, the greater the number of class periods, the greater the number of films shown. However, there was some variation among instructors in the relationship of number of class periods to number of films shown; one such variation will be reported in the next section.

Reactions of instructors. The frequency distribution of instructors' responses to the 14 items and the item means are reported in the Appendix in Table B. Weights were assigned to the adjectival responses and item means were calculated. The item means were rounded to the nearest whole number and assigned their adjectival meanings for the following general summary:

STRONGLY AGREE was the average instructor response for:

"The picture quality (color, camera focus, etc.) of the films was good."

"The concepts stressed in the Concept films were clearly defined and understandable."

AGREE was the average instructor response for:

"The purpose of the Pattern films was clear."

"The sound quality of the films was good."

"The films seemed to hold the attention of my students."

"The Concept films were at an appropriate level of difficulty for my students."

"Any instructor who wants his students to acquire these concepts should use both the Concept films and Pattern films."

"If they were available, I would plan to use these films in future courses."

"The films were obviously produced by professional film makers."

UNDECIDED was not the average response for any item.

DISAGREE was the average instructor response for:

"The purpose of the Concept films was unclear."

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"The classroom episodes portrayed in the films were not realistic or believable."

"Either the Pattern films or the Concept films by themselves could have achieved the same purposes."

"The sequence or format of the Concept films was confusing."

STRONGLY DISAGREE was the average instructor response for:

"The concepts stressed in the Concept films were not of sufficient importance to warrant the time expenditure involved."

Generally, the instructors' responses were very supportive of the film series. The vast majority of the instructors were very positive toward the films on all items. It will be recalled that the series was designed to meet two practical criteria: flexibility in use and inclusion of necessary conceptual content. With respect to these criteria, several aspects of the responses are worth noting.

First, as the previous section on characteristics of use indicated, different instructors reported using the films in quite varied ways with groups of very different size and of different educational or professional levels. There was also considerable variation in the number and selection of films used by different instructors. This variation in use across instructors, considered in light of their highly favorable reactions in general, suggests that the evident flexibility of the film series was either reacted to favorably or, at the least, did not mitigate against an otherwise favorable reaction.

With respect to the conceptual content of the series, reactions to the Concept films should be particularly noted since this subset of the series was designed to communicate the necessary conceptual content. The numerically smallest item mean was in response to "The concepts stressed in the Concept films were not of sufficient importance to warrant the time expenditure involved." Since this was a negatively stated item, one can infer that the typical instructor thought the time spent in using the Concept films was warranted. When this finding is related to the earlier finding that on several occasions the Concept films were shown more than once to the same students, it is fairly well

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substantiated that the Concept films are "rich" in content. Furthermore, the fact that the average instructor response was strongly agree for the item, "The concepts stressed in the Concept films were clearly defined and understandable", indicates that the content of the Concept films was not only a rich resource but was clear in definition and presentation. In general, instructor reactions to items concerning the Concept films indicates that the conceptual content treated in the films was clear in definition, structure and purpose.

It is quite clear also that the Concept films and Pattern films form an integrated series. As evidence of this, note the average instructor response to these two items: "Either the Pattern films or the Concept films by themselves could have achieved the same purpose" and "Any instructor who wants his students to acquire these concepts should use both the Concept films and Pattern films." The instructors disagreed that either the Concept films or the Pattern films could have achieved the same objectives by themselves. There was substantial instructor support that both the Concept films and Pattern films were needed.

Results of Student Evaluation

Analyses of the data from the revised Student Rating Scale were compiled by using the total scale score as well as the individual item scores. The information based on the total scale score is reported first, followed by an analysis of class and use characteristics related to total scale scores, and finally by a description of the results from the individual items. For all of the analyses using the total scale score, the class was selected as the unit of analysis.

General reactions of students. Descriptive information from the Student Rating Scale is reported in the Appendix in Table C. For each of the 15 classes involved in the survey, the following items are included in the table: number of students, total scale mean, standard deviation, and reliability. The descriptive information for each class is reported in descending order of class means. The total scale score has a potential range from a low of 20 to a high of 100. A score of 100 would result if a student strongly agreed with all positively

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stated items and strongly disagreed with all negatively stated items. A score of 20 would indicate a set of responses which is the exact converse of the set of responses for a score of 100.

The total scale mean for the combined classes (N = 294) was 75.29. This mean can be interpreted as a generally favorable reaction across the 294 students and the 20 items. That is, on the average for both students and items, the response was favorable toward the films and their use. The tendency was for the students to agree with the positively stated items and to disagree with the negatively stated items. A casual inspection of the total scale means of the 15 classes, however, reveals that there was fairly substantial variation in the degree of favorability. The highest mean was 92.86 and the lowest was 70.95, a difference of approximately two standard deviations. Some of this variation might be accounted for by differences in student characteristics, in class characteristics, or in the use of the films. No student characteristics could be related to the differences in class means because of the anonymity of student responses. However, data were available for considering the possible relationship of class characteristics and use characteristics to the degree of favorability in student reactions. These relationships are explored in the next two sections.

Class characteristics and general reactions of students. The two class characteristics considered were class size and educational setting. First, as shown in Table 4, the 15 classes were placed in rank order by size and divided into three groups. One group consisted of five classes which ranged in size from 22 to 58 students; a second group contained five classes which ranged in size from 11 to 20 students; a third group had between six and eight students within each class. The unweighted means for these three groups using the total scale score were very similar. The means for the first and second groups were almost identical, 74.68 and 74.64. The mean for the third group was slightly higher, 79.60, but not significantly so. Class size did not seem to account for the variation among class means.

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stated items and strongly disagreed with all negatively stated items. A score of 20 would indicate a set of responses which is the exact converse of the set of responses for a score of 100.

The total scale mean for the combined classes (N = 294) was 75.29. This mean can be interpreted as a generally favorable reaction across the 294 students and the 20 items. That is, on the average for both students and items, the response was favorable toward the films and their use. The tendency was for the students to agree with the positively stated items and to disagree with the negatively stated items. A casual inspection of the total scale means of the 15 classes, however, reveals that there was fairly substantial variation in the degree of favorability. The highest mean was 92.86 and the lowest was 70.95, a difference of approximately two standard deviations. Some of this variation might be accounted for by differences in student characteristics, in class characteristics, or in the use of the films. No student characteristics could be related to the differences in class means because of the anonymity of student responses. However, data were available for considering the possible relationship of class characteristics and use characteristics to the degree of favorability in student reactions. These relationships are explored in the next two sections.

Class characteristics and general reactions of students. The two class characteristics considered were class size and educational setting. First, as shown in Table 4, the 15 classes were placed in rank order by size and divided into three groups. One group consisted of five classes which ranged in size from 22 to 58 students; a second group contained five classes which ranged in size from 11 to 20 students; a third group had between six and eight students within each class. The unweighted means for these three groups using the total scale score were very similar. The means for the first and second groups were almost identical, 74.68 and 74.64. The mean for the third group was slightly higher, 79.60, but not significantly so. Class size did not seem to account for the variation among class means.

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Table 4. Average Student Rating Scale Scores by Size of Class Group.

Size of Class	Number of Classes	Unweighted Group Mean
22-58	5	74.68
11-20	5	74.64
6-8	5	79.60

$F(2, 12) = 1.433$ $p > .05$

The same 15 classes were divided next into three groups according to their educational setting. As indicated in Table 5, nine classes were at the undergraduate level, three classes were at the graduate level, and three groups were in an inservice setting. The unweighted group means were remarkably similar, all three means rounded to the nearest whole number were 76. Certainly the educational setting did not explain the variation among class means.

Table 5. Average Student Rating Scale Scores by Educational Setting.

Educational Setting	Number of Classes	Unweighted Group Mean
Undergraduate Courses	9	76.43
Graduate Courses	3	76.02
Inservice Groups	3	75.71

$F(2, 12) = 0.017$ $p > .05$

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Within these three educational settings, however, there was less homogeniety of student characteristics than one might expect. In the undergraduate classes, the vast majority of the students were preservice but within the graduate classes the students were almost equally divided between preservice teachers and active practitioners. At the inservice sites, most of the students were active practitioners. While the formal educational background and teaching experience of the students may have accounted for some of the variation among classes, the actual test of these hypotheses remains for future study because of the anonymity of student response imposed for this study.

Use characteristics and general reactions of students. The selection of specific films, the choice of instructional strategies, and the length of instructional time devoted to the use of the films also varied among the 15 classes. Unfortunately, sufficient data were not available to test the relationship of these variables with student reactions except for length of instructional time. Three groups were formed based on the length of instructional time devoted to the use of the films. One group consisted of five classes which devoted one hour to the use of the films; a second group was composed of two classes which used the films for two hours; a third group consisted of three classes which used the films for four hours. The means and analysis are reported in Table 6. As can be seen from this table, there was very little difference in reactions among the three groups. The means indicated that length of instructional time devoted to the use of the films had little impact on student reactions.

Table 6. Average Student Rating Scale Scores by Length of Instructional Time Period.

Group	Instructional Time Period	Number of Classes	Unweighted Group Mean
	Hours		
1	1	5	76.15
2	2	2	74.11
3	4	3	80.96

$F(2, 7) = 0.075$ p <.05

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To separate the possible effects of total instructional time and number of films used, four classes were selected each of which used four films but varied in the total time devoted to these four films. In two classes, one instructional period was devoted to film use; in the other two classes, two instructional periods were so used. A report of the unweighted means and associated analysis is presented in Table 7. Once again, different time periods for the use of the films did not indicate differences in student reactions.

Table 7. Average Student Rating Scale Scores by Length of Instructional Time Period Holding Constant Number of Film Showings.

Group	Instructional Time Period	Number of Classes	Unweighted Group Mean
	Hours		
1	1	2	76.30
2	2	2	74.11

$F(1, 2) = 0.203$ $p > .05$

In summary, the variation in degree of favorability among classes remains to be explained. The survey did not yield enough "tryouts" to trace the variation among classes or uses to any specific selection of films, use of instructional strategies, class characteristics, or student characteristics. Thus, in the remainder of this section, item score means are based on combined classes and uses. That is, since no differences among classes or uses were identified in the previous section, classes and uses were combined for the analysis of individual items.

Reactions of students on individual scale items. In Table D, in the Appendix, item information based on unweighted means is reported. For each item, the minimum class mean and the maximum class mean are reported in addition to the unweighted class mean. A plot of this

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information is portrayed in Figure 1. Once again, the unweighted item means were rounded to the nearest whole number and assigned an adjectival meaning in a procedure similar to the handling of information from the Instructor Questionnaire. The items are listed according to their unweighted item means.

STRONGLY AGREE was not the average response for any item.

AGREE was the average student response for:

"The films were worth the time we spent on them."

"The films held my interest."

"The pace at which events moved in the films was about right."

"The classes shown in the films appeared to be real classes."

"The important concepts were clearly illustrated in the films."

"The picture quality (color, camera focus, etc.) of the films was good."

"The instructor had a thorough knowledge of the concepts stressed in these films."

"We had ample opportunity to discuss the content of the films in this class."

"Generally speaking, the individual films were arranged in a way that made them easy to follow."

"The concepts emphasized in the films will be valuable to me in the classroom."

"I could easily see how the films were related to one another."

"The films seemed appropriate to the general content of this course."

UNCERTAIN was the average student response for:

"I feel I learned a lot from these films."

"The films seemed to me to be just another bunch of educational films."

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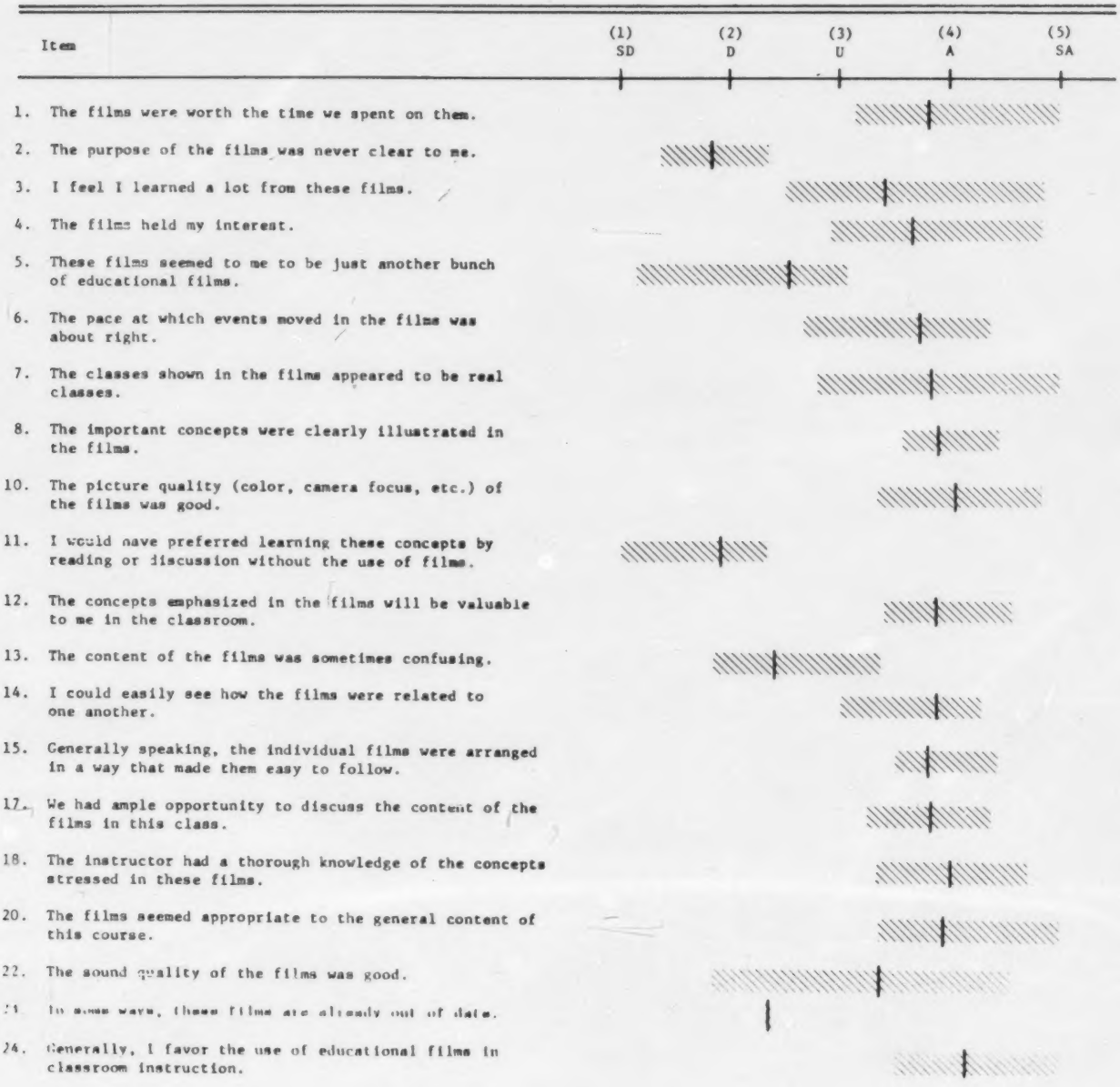
Figure 1. Plot of Minimum, Maximum and Unweighted Average of Class Means for Each STUDENT RATING SCALE Form Item.


Item
(1) SD
(2) D
(3) U
(4) A
(5) SA
1. The films were worth the time we spent on them.
2. The purpose of the films was never clear to me.
3. I feel I learned a lot from these films.
4. The films held my interest.
5. These films seemed to me to be just another bunch of educational films.
6. The pace at which events moved in the films was about right.
7. The classes shown in the films appeared to be real classes.
8. The important concepts were clearly illustrated in the films.
10. The picture quality (color, camera focus, etc.) of the films was good.
11. I would have preferred learning these concepts by reading or discussion without the use of films.
12. The concepts emphasized in the films will be valuable to me in the classroom.
13. The content of the films was sometimes confusing.
14. I could easily see how the films were related to one another.
15. Generally speaking, the individual films were arranged in a way that made them easy to follow.
17. We had ample opportunity to discuss the content of the films in this class.
18. The instructor had a thorough knowledge of the concepts stressed in these films.
20. The films seemed appropriate to the general content of this course.
22. The sound quality of the films was good.
24. Generally, I favor the use of educational films in classroom instruction.

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"The sound quality of the films was good."

DISAGREE was the average student response for:

"The purpose of the films was never clear to me."

"I would have preferred learning these concepts by reading or discussion without the use of films."

"The content of the films was sometimes confusing."

"In some ways, these films are already out of date."

STRONGLY DISAGREE was not the average response for any item.

Generally, the unweighted item means indicate that students tended to agree with the positively stated items and disagree with the negatively stated items. This was expected and was encouraging. Among their reactions to all items, the students were most positive about the picture quality of the films (item mean = 4.05) and most uncertain about the sound quality of the films (item mean = 3.37). The instructors perceptions were decidedly more positive on each of these aspects of technical quality.

A perusal of the summary of responses indicates that the students reacted favorably to all but one item concerning the conceptual content of the series. Finally, they agreed with the instructors in their opinion that "The classes shown in the films appeared to be real classes." In other words, both instructors and students agreed on the general authenticity of the classroom episodes portrayed in the Pattern films and instanced in the Concept films.

As a final summary of student responses, percent distribution of student responses are reported in Table E, in the Appendix, for each item. These distributions are based on 294 students from the 15 classes used in the final survey. An inspection of the percent distribution indicates that from 54 to 86 percent of the students agreed or strongly agreed with the positively stated items and disagreed or strongly disagreed with the negatively stated items. That is, a majority of the students reacted favorably to every item.

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Summary and Implications

In terms of the specific goals of this evaluation, to assess learning outcomes and reactions of users, the results can be readily summarized. First, use of the protocol films in the Concepts and Patterns series resulted in significant gains in acquisition of the concepts which are basic to the series. In other words, the instructional use of the films led to a gain in the ability to categorize classroom behavior in terms of a specified set of concepts. Second, the Concepts and Patterns series was very favorably received by the instructors (who used it under "consumer conditions") and was favorably received by the students of these instructors. The conceptual clarity, instructional utility and technical quality of the films in the series was clearly established for a heterogeneous sample of undergraduate and graduate, preservice and inservice teachers.

Implicit in these general results are also certain methodological suggestions for the future development of protocol materials. First, as a means of assessing learning outcomes from protocol materials, a film-based test format such as the one developed and used in this study seems to be a valid and practical one.[7] Such an instrument provides a particularly advantageous means of assessing the categorization of "real behavior" (in lieu of printed descriptions of behavior) in a format that lends itself to objective test scoring. In addition, the method of establishing test reliability and validity developed during this study (which will be reported in a test manual) should provide an interesting model for future evaluators of protocol materials.

In terms of the reactions of users, it is most notable that from the viewpoint of the instructors surveyed, the films in the Concepts and Patterns series were applicable to a wide variety of instructional

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[7] See Berliner, D. C. & Cordori, C. A. Learning concepts about group process: An evaluation of protocol materials. San Francisco, Calif.: Far West Laboratory for Educational Research and Development, 1973, p. 43 for reference to the development and use of a videotaped test in another protocol materials project.

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methods, groups and settings. This fact, considered in light of the highly favorable reactions of the instructors, indicates that the film series is highly flexible and that this flexibility is favorably received. Furthermore, the films fulfilled the necessary conceptual purposes of the series efficiently and effectively. This suggests that necessary conceptual content can be established and communicated in carefully designed protocol films with a minimal use of adjunct printed materials. The evidence provided in this report that the film series met these two design criteria (flexibility in use and inclusion of necessary conceptual content) is significant in light of the fact that the use of multi-media "packages" in classroom instruction is often such a difficult matter logistically. Developers of protocol materials in the future might well consider the production of highly flexible, single medium materials.

Obviously, a number of questions about learning outcomes and reactions of users remain to be explored. In the area of learning outcomes, it should be noted that the results of this evaluation do not establish that protocol film-based instruction results in greater gains than do other forms of instruction. Since this was not a comparative study of instructional methods, the question of comparative effectiveness remains for further investigation. Also remaining to be explored are questions about the effect on concept acquisition of using fewer or more of the films in the series, different film presentation sequences, etc. Finally, the effect of individual variables on concept acquisition through protocol-based instruction remains a question. The contribution of intellectual, attitudinal and motivational factors to learning outcomes should certainly be explored.

In terms of the reactions of students, perhaps the most interesting question left unanswered by this evaluation was the source of the variance in reactions of different groups to the films. As indicated in the results, although student reactions were generally favorable to the film series, there was considerable variation in reaction among the classes surveyed. The contribution to this variance of the particular selection of students or composition of these classes, for example, remains to be explored.

Appendix

Concept Definitions

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REPRODUCTIVE QUESTION - a teacher question intended to directly elicit the recall of content specifically learned as part of a course or topic of study. In response to such a question, the student is expected to accurately reproduce such content or to recognize when it is accurately reproduced by someone else. Typical student responses are repetition, restatement or recognition of content.

PRODUCTIVE QUESTION - a teacher question that is intended to encourage the production of ideas or combinations of ideas as opposed to simply the reproduction of specifically learned content. A student response to such a question may reflect the recall of specifically learned content but that content is used in such processes as interpretation, application, and evaluation.

PROBING - a teacher reaction in the form of a question or implied question that pursues some aspect of the substantive content of a preceding student response. Such proves typically seek further description, clarification, explanation, or extension of that substantive content. By "preceding response" is meant any preceding response including, but not limited to, the student response that immediately precedes a teacher reaction. By "substantive content" is meant the formal content of classroom discussion as opposed to such procedural content as assignment making, the order of discussion, or disciplinary matters.

INFORMING - a teacher reaction in which information is introduced that is related to some aspect of the substantive content of a preceding student response. Such a reaction is often intended to produce some modification in the substantive content of that student response. By "preceding response" is meant any preceding response including, but not limited to, the student response that immediately precedes a teacher reaction. By "substantive content" is meant the formal content of classroom discussion as opposed to such procedural content as assignment making, the order of discussion, or disciplinary matters.

APPROVING - a verbal and/or nonverbal teacher reaction that is intended to encourage, or might reasonably be expected to encourage continued student responding or a continuation of student behavior.

DISAPPROVING - a verbal and/or nonverbal teacher reaction that is intended to discourage, or might reasonably be expected to discourage continued student responding or a continuation of student behavior.

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Table A. Item-Total Correlation Coefficients and Scale Characteristics for the Student Rating Scale (N = 106).

Item Number	Item-Total Correlation	Item Number	Item-Total Correlation
1	.59*	13	.54
2	.51	14	.71
3	.65	15	.60
4	.74	16	omitted
5	.56	17	.49
6	.47	18	.67
7	.40	19	omitted
8	.57	20	.72
9	omitted	21	omitted
10	.56	22	.47
11	.57	23	.38
12	.57	24	.64

Revised Scale Characteristics:

Number of Items = 20
Scale Mean = 72.37
Scale Standard Deviation = 13.65
Scale Reliability = .89

*All correlations are significant $p < .05$

Table B. Frequency Distributions of Instructors' Responses to the 14 Likert Items on the Instructor Questionnaire and Item Means.

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Item	Item Directionality	Total	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)	Item Mean
The purpose of the Pattern films was clear.	+	13	-	-	1	6	6	4.38
The sound quality of the films was good.	+	14	-	1	-	10	3	4.07
The concepts stressed in the Concept films were not of sufficient importance to warrant the time expenditure involved.	-	14	9	5	-	-	-	1.36
The films seemed to hold the attention of my students.	+	14	-	1	-	7	6	4.29
The picture quality (color, camera focus, etc.) of the films was good.	+	14	-	-	-	4	10	4.71
The Concept films were at an appropriate level of difficulty for my students.	+	14	-	2	3	4	5	3.86
The purpose of the Concept films was unclear.	-	14	8	5	-	1	-	1.57
The classroom episodes portrayed in the films were not realistic or believable.	-	14	5	7	1	-	1	1.93
The concepts stressed in the Concept films were clearly defined and understandable.	+	14	-	-	-	5	9	4.64

Table B. (continued).

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Item	Item Directionality	Total	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)	Item Mean
Either the Pattern films or the Concept films by themselves could have achieved the same purposes.	-	1[illegible]	6	3	3	1	-	1.92
The sequence or format of the Concept films was confusing.	-	14	5	8	1	-	-	1.71
Any instructor who wants his students to acquire these concepts should use both the Concept films and Pattern films.	+	14	-	-	3	7	4	4.07
If they were available, I would plan to use these films in future courses.	+	14	-	1	1	3	9	4.43
These films were obviously produced by professional film makers.	+	14	1	1	2	7	3	3.71

Table C. Descriptive Information from the Student Rating Scale for 15 classes.

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Class Educational Setting	Number of Students	Scale		
		Mean	Standard Deviation	Reliability
Undergrad	7	92.86	6.79	.91
Undergrad	35	80.60	10.62	.90
Inservice	8	80.00	8.80	.87
Undergrad	12	78.58	6.73	.64
Graduate	43	78.56	8.03	.83
Graduate	6	76.50	14.68	.94
Undergrad	11	76.36	7.85	.83
Inservice	8	75.13	8.82	.80
Undergrad	17	73.24	11.58	.87
Graduate	20	73.00	9.34	.78
Inservice	6	72.00	6.61	.69
Undergrad	13	72.00	9.74	.87
Undergrad	58	71.86	11.52	.89
Undergrad	28	71.43	12.13	.89
Undergrad	22	70.95	9.24	.80
Combined Classes	294	75.29	11.04	.87

Table D. Minimum, Maximum, and Unweighted Average of Class Means for Each Student Rating Scale Item.

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Item Number	Minimum Mean	Maximum Mean	Unweighted Mean
1	3.12	5.00	3.81
2	1.37	2.36	1.84
3	2.50	4.86	3.42
4	2.92	4.86	3.67
5	1.14	3.08	2.53
6	2.67	4.37	3.73
7	2.80	5.00	3.83
8	3.57	4.43	3.89
10	3.33	4.83	4.05
11	1.00	2.33	1.91
12	3.40	4.57	3.87
13	1.83	3.36	2.40
14	3.00	4.29	3.88
15	3.50	4.43	3.80
17	3.24	4.37	3.82
18	3.33	4.71	4.01
20	3.35	5.00	3.95
22	1.83	4.57	3.37
23	1.42	3.09	2.37
24	3.50	5.00	4.16

Table E. Per Cent Distribution of Student Responses for Each of the Items on the Student Rating Scale.

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Item	Number of Responses	Direction-ality	Per Cent of Responses				
			Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1. The films were worth the time we spent on them.	294	+	3	9	15	53	20
2. The purpose of the films was never clear to me.	294	-	48	31	8	9	4
3. I feel I learned a lot from these films.	294	+	4	14	28	44	10
4. The films held my interest.	294	+	6	14	15	44	21
5. These films seemed to me to be just another bunch of educational films.	294	-	16	39	26	13	6
6. The pace at which events moved in the films was about right.	294	+	1	13	25	43	19
7. The classes shown in the films appeared to be real classes.	294	+	8	13	11	38	30
8. The important concepts were clearly illustrated in the films.	294	+	2	7	17	53	21
10. The picture quality (color, camera focus, etc.) of the films was good.	294	+	4	6	14	41	35

Table E. (Continued)

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Item	Number of Responses	Direction-ality	Per Cent of Responses				
			Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
11. I would have preferred learning these concepts by reading or discussion without the use of films.	294	-	46	34	11	7	2
12. The concepts emphasized in the films will be valuable to me in the classroom.	294	+	3	6	18	46	27
13. The content of the films was sometimes confusing.	294	-	17	43	18	19	3
14. I could easily see how the films were related to one another.	293	+	1	4	21	52	22
15. Generally speaking, the individual films were arranged in a way that made them easy to follow.	294	+	1	8	21	53	17
17. We had ample opportunity to discuss the content of the films in this class.	293	+	2	14	12	48	24
18. The instructor had a thorough knowledge of the concepts stressed in these films.	294	+	2	6	14	45	33
20. The films seemed appropriate to the general content of this course.	294	+	1	6	15	51	27

Table E. (Continued)

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Item	Number of Responses	Direction-ality	Per Cent of Responses				
			Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
22. The sound quality of the films was good.	294	+	9	17	16	44	14
23. In some ways, these films are already out of date.	294	-	15	39	22	19	5
24. Generally, I favor the use of educational films in classroom instruction.	290	+	2	5	7	41	45

Instructor Questionnaire

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A. 1. Name _____

2. School, College or Univ. _____

3. Department _____

4. Address _____

5. Phone ___/___/_____ 6. Date Form Completed _____

B. 7. In total, how many trainees (students or teachers) did you use the films with? _____

8. Check (✓) if the films were used in a college or university setting or in an in-service setting:

_____ College or University

_____ In-service

9. If used in a college or university setting, list the title (not the course number) of the course or courses in which the film or films were used and circle whether undergraduate or graduate level:

_____ undergrad grad

_____ undergrad grad

_____ undergrad grad

_____ undergrad grad

10. The students in the above course(s) were (check one):

_____ preservice

_____ experienced or active in teaching

_____ both

11. The films were used in the following ways (check all that apply):

_____ in lecture or discussion with total class

_____ in individual study outside of class

_____ in work with small groups

_____ other (describe briefly) _____

_____

_____

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12. Check (✓) which films you used and indicate the number of times you used each film in the spaces provided:

Film Used	No. of Times Used	Concepts in Teacher-Pupil Interaction:
_____	_____	Probing & Informing
_____	_____	Questioning: Reproductive & Productive
_____	_____	Approving & Disapproving
		Patterns in Teacher-Pupil Interaction:
_____	_____	Bacteria
_____	_____	People Who Help Us
_____	_____	The Five Senses
_____	_____	Population Control
_____	_____	Essentials for Life
_____	_____	Ecology

13. Which one of the above films did you find most useful?

_____

14. Approximately how much instructional time was devoted to the use of the films? (check one)

_____ one class period or one hour of study or discussion

_____ two class periods or two hours of study or discussion

_____ three class periods or three hours of study or discussion

_____ four or more class periods or four or more hours of study or discussion

PLEASE NOTE: Beginning with the next item, the Concepts in Teacher-Pupil Interaction films are identified as Concept films; the Patterns in Teacher-Pupil Interaction films are identified as Pattern films.

15. Which of the sequences below did you generally follow in using the films? (check one)

_____ Concept film(s) followed by Pattern film(s)

_____ Pattern film(s) followed by Concept film(s)

_____ Concept film(s) only

_____ Pattern film(s) only

_____ Other (describe) _____

_____

_____

C. Please indicate your agreement or disagreement with each of the following statements by checking the appropriate space at the right.

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
16. The purpose of the Pattern films was clear.	____	____	____	____	____
17. The sound quality of the films was good.	____	____	____	____	____
18. The concepts stressed in the Concept films were not of sufficient importance to warrant the time expenditure involved.	____	____	____	____	____
19. The films seemed to hold the attention of my students.	____	____	____	____	____
20. The picture quality (color, camera focus, etc.) of the films was good.	____	____	____	____	____
21. The Concept films were at an appropriate level of difficulty for my students.	____	____	____	____	____
22. The purpose of the Concept films was unclear.	____	____	____	____	____
23. The classroom episodes portrayed in the films were not realistic or believable.	____	____	____	____	____

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	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
24. The concepts stressed in the Concept films were clearly defined and understandable.	____	____	____	____	____
25. Either the Pattern films or the Concept films by themselves could have achieved the same purposes.	____	____	____	____	____
26. The sequence or format of the Concept films was confusing.	____	____	____	____	____
27. Any instructor who wants his students to acquire these concepts should use both the Concept films and Pattern films.	____	____	____	____	____
28. If they were available, I would plan to use these films in future courses.	____	____	____	____	____
29. These films were obviously produced by professional film makers.	____	____	____	____	____
30. The content of the manual contained little relevant information.	____	____	____	____	____

31. The manual contained (check one):

_____ too little information

_____ the right amount of information

_____ too much information

32. What useful information do you feel could be added to the printed manual?

_____

_____

_____

Student Rating Scale

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Instructions: Below is a list of statements about the films you have just used in this class. We now want you to express your opinions about the films by telling us how much you agree or disagree with each of the statements below.

If you strongly disagree, blacken in the space under "a".
If you disagree but not strongly, blacken in the space under "b".
If you are uncertain or have a neutral feeling about the statement, blacken in the space under "c".
If you agree with the statement but not strongly, blacken in the space under "d".
If you strongly agree, blacken in the space under "e".

Please identify the name of your school, college or university and the name of your instructor on the answer sheet, but do not give your name. Anonymity allows you to be completely candid, and it is your honesty that we need.

WE WOULD LIKE TO KNOW YOUR OPINIONS ON THE FOLLOWING QUESTIONS: PLEASE BEGIN WITH NUMBER 1 ON YOUR ANSWER SHEET.

1. The films were worth the time we spent on them.
2. The purpose of the films was never clear to me.
3. I feel I learned a lot from these films.
4. The films held my interest.
5. These films seemed to me to be just another bunch of educational films.
6. The pace at which events moved in the films was about right.
7. The classes shown in the films appeared to be real classes.
8. The important concepts were clearly illustrated in the films.
9. The content of the films was easy to the point of being obvious.
10. The picture quality (color, camera focus, etc.) of the films was good.
11. I would have preferred learning these concepts by reading or discussion without the use of films.
12. The concepts emphasized in the films will be valuable to me in the classroom.
13. The content of the films was sometimes confusing.
14. I could easily see how the films were related to one another.
15. Generally speaking, the individual films were arranged in a way that made them easy to follow.
16. Much of the content of these films has been an unnecessary duplication of other material presented in this course.
17. We had ample opportunity to discuss the content of the films in this class.
18. The instructor had a thorough knowledge of the concepts stressed in these films.
19. We needed more opportunities to apply the content of these films.
20. The films seemed appropriate to the general content of this course.
21. These films were apparently produced by amateurs rather than by experienced film producers.
22. The sound quality of the films was good.
23. In some ways, these films are already out of date.
24. Generally, I favor the use of educational films in classroom instruction.